

Appl. No. : **10/804,407**
Filed : **March 19, 2004**

REMARKS

Claim 1 and 20 are amended herein. Support for the amendment to Claim 1 is found throughout the specification, and the claims as originally filed for example, original Claim 3. Claims 20 is amended to correct a minor typographical error. No new matter has been added by the amendments.

In view of the amendment to Claim 1, Claim 3 is canceled herein.

New Claims 27 and 28 are added. Support for new Claims 27 and 28 is found throughout the specification, for example, at page 9, lines 13-15.

Upon entry of the amendments, Claims 1, 2 and 4-28 are pending in this application.

Rejection of Claims 1- 26 under 35 U.S.C. §103

Claims 1-26 are rejected under 35 U.S.C. §103(a), as obvious over the JP Abstract 2001232730 (the '730 Abstract), in view of Nakamura et al. (U.S. Pat. No. 5,030,683) and Bugajski et al. (U.S. Pat. No. 5,777,022).

The Office Action states that the acid value of 15-100 mg KOH in the '730 Abstract teaches all elements except the recited (meth)acrylic polymer, that Nakamura teaches acrylic polymers with hydroxyl values from 10-300, and that Bugajski teaches polyisocyanate crosslinking agents and acrylic resins having no carboxylic acid functionality.

Applicants respectfully traverse.

Claims 1, 2 and 4-16

Claim 1, as amended, is directed to a Applicant plastic film, comprising: a substrate; and a hard coating layer formed on at least one side of the substrate, wherein the hard coating layer has a crosslinked structure comprising a methacrylic or acrylic polymer with a hydroxyl value of 20 to 80 (KOH mg/g) and a crosslinking agent selected from the group consisting of an epoxy-type crosslinking agent and an isocyanate-type crosslinking agent, wherein the methacrylic or acrylic polymer does not contain carboxylic acid functional groups, wherein the methacrylic or acrylic polymer is a HALS-hybrid methacrylic or acrylic polymer. Claims 2 and 4-16 depend from Claim 1.

Applicants submit that no combination of the cited references teaches or suggests all elements of the claims because no combination of the references teaches or suggests a methacrylic or acrylic polymer that is a HALS-hybrid methacrylic or acrylic polymer, and,

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additionally, the references cannot be combined to render obvious a plastic film having a methacrylic or acrylic polymer that does not contain carboxylic acid functional groups.

The '730 Abstract and Nakamura are silent regarding any HALS compounds. Bugajski teaches acrylic emulsions containing Tinuvin 292, a hindered amine light stabilizer, dispersed in the emulsions. However, neither Bugajski's emulsions, nor any reaction product thereof, contains a HALS-hybrid polymer, as recited in Claim 1. Applicants teach at page 9, lines 2-5 that a HALS-hybrid polymer is a hindered amine light stabilizer (HALS) having a functional group at its end, and is copolymerized in the methacrylic or acrylic polymers of the plastic film. Thus, the HALS-hybrid polymer of the present claims is structurally different from the emulsions of Bugajski containing HALS dispersed therein. Furthermore, Bugajski provides no teaching or suggestion for modifying Tinuvin 292 in order to form a HALS-hybrid polymer. The stability of a coating layer containing a HALS-hybrid (metha)acrylic polymer is superior to a coating layer that only contains HALS dispersed in a resin because the low-molecular weight HALS compounds dispersed in a resin leaches out of the resin when the resin contacts water. In contrast, the HALS of a HALS-hybrid (metha)acrylic polymer does not leach out of the polymer when the polymer contacts water. As such, the structural difference between the HALS-hybrid (metha)acrylic polymer present in the plastic film of Claim 1 and the HALS-dispersed resin of Bugajski results in significant difference in the properties of the claimed plastic film over any film that would contain Bugajski's emulsion. Thus, the HALS-hybrid (metha)acrylic polymer represents a non-obvious improvement over the emulsion taught in Bugajski. Since '730 Abstract and Nakamura are silent regarding any HALS compounds, no combination of the three cited references teaches all elements of Claim 1 because no combination of the references teaches or suggests a HALS-hybrid methacrylic or acrylic polymer. As such, the three cited references cannot render Claim 1 *prima facie* obvious.

Furthermore Claim 1 also recites that the methacrylic or acrylic polymer does not contain carboxylic acid functional groups. The amendments to Claim 1 further distinguishes Claim 1 and claims dependent therefrom over the cited references as a whole because the cited references teach that carboxylic acid functional groups are required. In particular, Nakamura teaches:

The component (B) of the present invention, aqueous polyester resin, is obtained by polycondensation of a polyhydric alcohol component and a polyvalent carboxylic acid component, and preferably usable are those resins which contain 5

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to 45% by weight of phenyl rings introduced by the use of an alcohol or carboxylic acid component having a phenyl ring.

The aqueous polyester resin or the aqueous acrylic resin **is required to have an acid value in the range of from 10 to 100** and a hydroxyl value in the range of from 10 to 300. When the acid value is less than 10, it is difficult to make a coating composition aqueous, and when the acid value exceeds 100, the resultant coating composition has inferior water resistance. *Nakamura* at column 3, lines 26-32 and column 4, lines 39-45 (emphasis added).

Thus, Nakamura emphasizes that carboxylic acid functional groups are required in Nakamura's polymers, and teaches that an acid value of less than 10 would be unsuitable. As such, Nakamura's teachings lead away from the plastic film of Claim 1 which recites that the methacrylic or acrylic polymer does not contain carboxylic acid functional groups. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). When considering the teachings of Nakamura as a whole, it is not possible to arrive at the plastic film of Claim 1 because Nakamura requires carboxylic acid functional groups. Accordingly, no combination of Nakamura with the remaining cited references can render *prima facie* obvious the plastic film of Claim 1.

In view of the amendment to Claim 1 and the above remarks, Applicants respectfully request reconsideration and removal of this ground for rejection of Claims 1, 2 and 4-16.

Claims 17-26

Claim 17 is directed to a plastic film comprising a substrate having a thickness of about 60 μm to about 200 μm , and a hard coating layer having a thickness of about 1 μm to about 10 μm formed on at least one side of the substrate, wherein the hard coating layer has a three-dimensional structure comprising methacrylic and/or acrylic polymers crosslinked with each other, said polymers having a hydroxyl value of 20 to 80 KOH mg/g, and wherein the substrate shows a swelling rate of no more than 5% as measured after the surface of the hard coating layer of the plastic film is kept in contact with toluene for 5 minutes. Claims 18-21 depend from Claim 17. Claim 22 is directed to a method of manufacturing a plastic film comprising: providing a substrate having a thickness of about 60 μm to about 200 μm ; providing a polymer solution comprising methacrylic and/or acrylic polymers having a hydroxyl value of 20 to 80

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KOH mg/g, a crosslinking agent, and a solvent; applying the polymer solution on at least one side of the substrate; and curing the polymer solution to form a hard coating layer having a thickness of about 1 μm to about 10 μm having a three-dimensional crosslinked structure, wherein the substrate shows a swelling rate of no more than 5% as measured after the surface of the hard coating layer of the plastic film is kept in contact with toluene for 5 minutes. Claims 23-26 depend from Claim 22.

The Office Action makes no statement regarding how independent Claims 17 and 22 are rejected as obvious over the cited references. At best, the Office Action states:

Other parameters that are not either expressly or inherently disclosed are each believed to be obvious modifications to one of ordinary skill, in the absence of unexpected results. *Office Action* at page 3.

No other reasoning is provided for the rejection of Claims 17 and 22. In view of the lack of explanation in the Office Action laying out the basis for rejecting Claims 17 and 22, Applicants have limited basis for submitting remarks in response to the rejection of these claims. The M.P.E.P. specifically addresses this issue:

It is important for an examiner to properly communicate the basis for a rejection so that the issues can be identified early and the applicant can be given fair opportunity to reply. *M.P.E.P.* §706.02(j).

In view of the above, Applicants respectfully request clarification of the rejection of Claims 17 and 22.

Notwithstanding the above, Applicants submit that Claims 17 and 22 are not obvious over the cited references. Claims 17 and 22 recite, *inter alia*, that the substrate shows a swelling rate of no more than 5% as measured after the surface of the hard coating layer of the plastic film is kept in contact with toluene for 5 minutes. Applicants submit that none of the references, individually, teaches or suggests a plastic film with such a property. Furthermore, none of the references teaches or suggests the desirability of a plastic film to have such properties. Accordingly, there is no basis to state that one of ordinary skill in the art would be motivated to combine the references in order to arrive at a plastic film having this property when none of the references provide any reason for a plastic film to have a resistance to swelling in toluene. The only motivation to form a plastic film having this property and the only teaching toward forming such a plastic film are in Applicants' specification, not in the cited references. Without such

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teaching in the cited references, a *prima facie* obviousness rejection cannot be supported by statement that one of ordinary skill in the art would choose to combine the references in order to form a plastic film inherently having this property. Since there is no motivation in the references to form a plastic film having all elements recited in Claims 17 and 22, the cited references, alone or combined, cannot render Claims 17 and 22 obvious. As such, Applicants respectfully submit that Claims 17 and 22, and claims dependent therefrom, are not obvious over the cited references.

New Claims 27 and 28

New Claims 27 and 28 are directed to plastic films having the elements recited in Claim 1, wherein the content of HALS in the (meth)acrylic polymer is from about 0.1% to about 50% by weight, or from about 1% to about 20% by weight, respectively. Since new Claims 27 and 28 depend from Claim 1, these claims are non-obvious over the cited references for at least the reasons provided above. In addition, Applicants submit that the cited references do not teach or suggest a plastic film comprising these recited ranges of HALS in the (meth)acrylic polymer. The '730 Abstract and Nakamura are silent regarding any HALS compounds. Bugajski teaches acrylic emulsions containing less than 0.5% Tinuvin 292 dispersed in the emulsion. Furthermore, Bugajski provides no reasons for incorporating the Tinuvin 292 into the emulsion. As such, Bugajski provides no teaching or suggestion to increase the amount of Tinuvin 292 to a quantity within the scope of the claims. Accordingly, the plastic films of Claims 27 and 28 are not obvious modifications of the cited references. As such, Applicants submit that Claims 27 and 28 are non-obvious over the cited references.

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CONCLUSION

In view of the above, Applicants respectfully maintain that claims are patentable and request that they be passed to issue. Applicants invite the Examiner to call the undersigned if any remaining issues may be resolved by telephone.

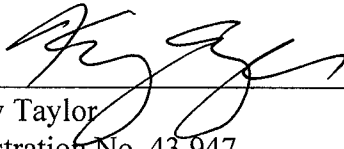
Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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